



California Hydrogen Highway Blueprint Implementation Topic Team

Sub-team C/S.2.f – Field Certification Acceptance

Implementation Topic Team Public Hearing

August 31, 2004

CalEPA, Sacramento, CA



California Hydrogen Highways

www.hydrogenhighway.ca.gov

$$\left[\frac{p^2}{2\mu} + V(r) \right] \psi(r) = E \psi(r)$$



Sub-team C/S.2.f – Field Certification

Definitions / Acronyms

- Field Certification = Field Evaluation – evaluation of suitability and certification for field service of equipment by a recognized third party, normally NRTL, in lieu of listing
- NRTL – Nationally Recognized Testing Laboratory
- Listed – component / equipment that has been tested and registered by a NRTL as compliant with appropriate safety and performance standards
- AHJ – Authority Having Jurisdiction – any authority involved in permitting and approvals process



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Why Field Certification is an Issue?

- In determining the acceptability of installations, procedures, equipment, or materials, the AHJ normally base acceptance on compliance with appropriate codes and / or standards
- The AHJ also normally require that the equipment be listed to determine compliance with appropriate standards
- In the absence of such codes and standards, the AHJ may require evidence of proper installation, procedure, or use. JUDGMENT and EXPERTISE ARE REQUIRED
- This evidence could be supplied in the form of a Field Evaluation by an NRTL in lieu of equipment listing
- *Field Evaluation Acceptance is critical for new technologies demonstration projects and early market penetration*



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Authority Having Jurisdiction (AHJ)

- Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as:
 - fire chief
 - fire marshal
 - chief of a fire prevention bureau
 - labor or health department
 - building official
 - electrical inspector
 - others having statutory authority



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Authority Having Jurisdiction (AHJ) - *continued*

- Insurance
 - an insurance inspection department
 - rating bureau
 - or other insurance company representative may be the authority having jurisdiction
- Property owner or his or her designated agent assumes the role of the authority having jurisdiction;
- Government installations
 - the commanding officer or departmental official may be the authority having jurisdiction.



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AHJ can approve installations not covered by existing codes



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AHJ can approve installations not covered by existing codes

- The AHJ is authorized to approve an alternative material or method of construction where it is found that the proposed design is satisfactory and complies with the intent of the provisions of the Code, and that the material, method or work offered is equivalent of that prescribed in the Code



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Nationally Recognized Testing Laboratory (NRTL)

- NRTLs are qualified private organizations that meet the requirements in OSHA regulations under 29 CFR section 1910.7 to perform independent safety testing and product certification
- OSHA requires the same organization to operate a product-certification program that includes listing and labeling and follow-up inspection program



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Sub-team C/S.2.f – Field Certification Underwriter's Laboratory and other NRTL's

- 16 NRTLs including UL are authorized to perform product certification
- **FIELD EVALUATION SERVICE** – A UL service for evaluating an installed product that has not been previously investigated by UL, or for a UL Listed product that has been modified in the field. Field evaluations are limited to the features and characteristics that can be evaluated at the installed site without damage to the product.



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Listed Components for Hydrogen

- When Nationally Recognized Testing Laboratory inspectors inspect a piece of equipment for the purposes of certification, they look for listed components that are suitable for hydrogen
- These components may exist for natural gas and be adapted for hydrogen but the standard for the same component in hydrogen service has yet to be written
- The component manufacturer may state that the component is suitable for H₂ but it has not been third party certified or listed for H₂ yet
- Certified = approved = listed and labelled = listed



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AHJs should be given guidelines on acceptance of hydrogen equipment

- Uniform guidelines for the State would:
 - Provide adequate public safety
 - Inform and educate officials
 - Simplify their work
 - Accelerate the introduction of hydrogen systems
 - Establish a uniform and equal playing field for all H2 equipment manufacturers
 - Enhance public confidence
 - Provide guidance to NRTLs in inspecting H2 equipment



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Sub-team C/S.2.f – Field Certification Recommendations

- Decide on interim regulations, guidelines or policy to deal with H2 equipment and fueling stations
- Provide guidance for field evaluation of H2 equipment
- Consult with NRTLs about field evaluation policy for hydrogen equipment



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